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## Chemistry Class - 11: Chapter – 9. Hydrogen Part – 1

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### ***I. Multiple Choice Questions (Type-I)***

#### **Question: 1**

Hydrogen resembles halogens in many respects for which several factors are responsible. Of the following factors which one is most important in this respect?

- (i) Its tendency to lose an electron to form a cation.
- (ii) Its tendency to gain a single electron in its valence shell to attain stable electronic configuration.
- (iii) Its low negative electron gain enthalpy value.
- (iv) Its small size.

**Answer: (ii)**

#### **Question: 2**

Why does  $H^+$  ion always get associated with other atoms or molecules?

- (i) Ionisation enthalpy of hydrogen resembles that of alkali metals.
- (ii) Its reactivity is similar to halogens.
- (iii) It resembles both alkali metals and halogens.
- (iv) Loss of an electron from hydrogen atom results in a nucleus of very small size as compared to other atoms or ions. Due to small size it cannot exist free.

**Answer: (iv)**

#### **Question: 3.**

Metal hydrides are ionic, covalent or molecular in nature. Among  $LiH$ ,  $NaH$ ,

$KH$ ,  $RbH$ ,  $CsH$ , the correct order of increasing ionic character is

- (i)  $LiH > NaH > CsH > KH > RbH$
- (ii)  $LiH < NaH < KH < RbH < CsH$
- (iii)  $RbH > CsH > NaH > KH > LiH$
- (iv)  $NaH > CsH > RbH > LiH > KH$

**Answer: (ii)**

#### **Question: 4.**

Which of the following hydrides is electron-precise hydride?

- (i)  $B_2H_6$
- (ii)  $NH_3$
- (iii)  $H_2O$
- (iv)  $CH_4$

**Answer: (iv)**

**Question: 5**

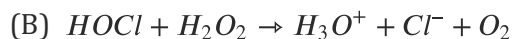
Radioactive elements emit  $\alpha$ ,  $\beta$  and  $\gamma$  rays and are characterised by their half lives. The radioactive isotope of hydrogen is

- (i) Protium
- (ii) Deuterium
- (iii) Tritium
- (iv) Hydronium

**Answer: (iii)**

**Question: 6**

Consider the reactions



Which of the following statements is correct about  $H_2O_2$  with reference to these reactions?  
Hydrogen peroxide is \_\_\_\_\_.

- (i) an oxidising agent in both (A) and (B)
- (ii) an oxidising agent in (A) and reducing agent in (B)
- (iii) a reducing agent in (A) and oxidising agent in (B)
- (iv) a reducing agent in both (A) and (B)

**Answer: (ii)**

**Question: 7**

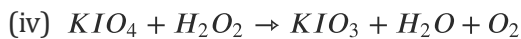
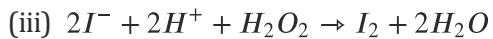
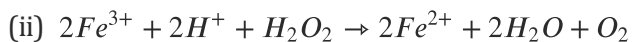
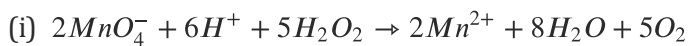
The oxide that gives  $H_2O_2$  on treatment with dilute  $H_2SO_4$  is —

- (i)  $PbO_2$
- (ii)  $BaO_2 \cdot 8H_2O + O_2$
- (iii)  $MnO_2$
- (iv)  $TiO_2$

**Answer: (ii)**

**Question: 8**

Which of the following equations depict the oxidising nature of  $H_2O_2$  ?



**Answer: (iii)**

**Question: 64**

Match Column I with Column II for the given properties/applications mentioned therein.

Column I		Column II	
(i)	$H$	(a)	Used in the name of perhydrol
(ii)	$H_2$	(b)	Can be reduced to dihydrogen by $NaH$
(iii)	$H_2O$	(c)	Can be used in hydroformylation of olefin.
(iv)	$H_2O_2$	(d)	Can be used in cutting and welding
Match Column I with Column II for the Given Properties/Applications Mentioned Therein			

**Answer:**

$(i) \rightarrow (d) (ii) \rightarrow (c) (iii) \rightarrow (b) (iv) \rightarrow (a)$